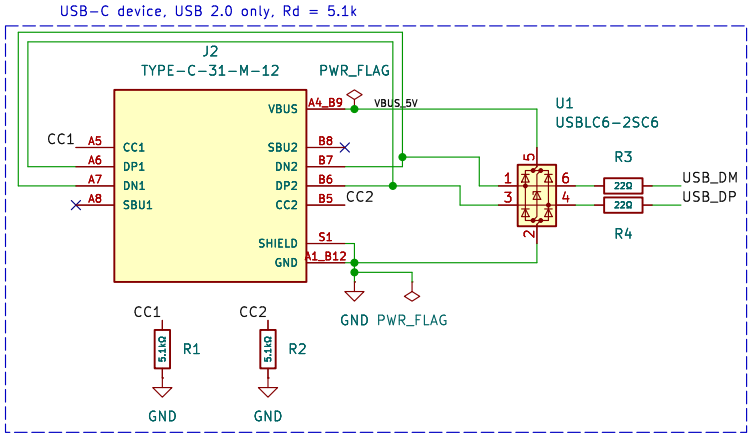

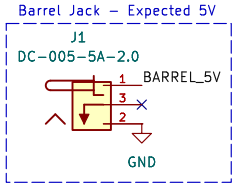

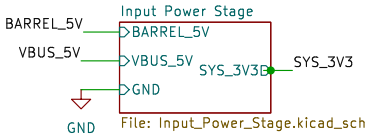

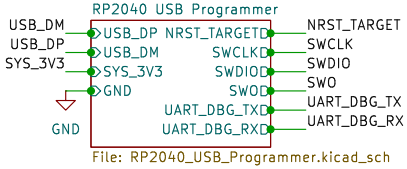

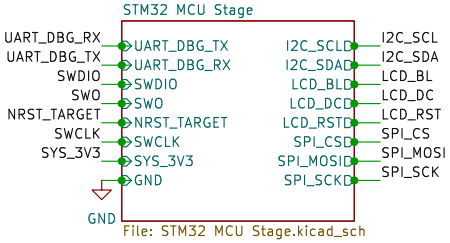

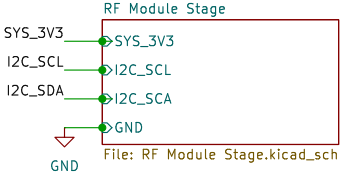

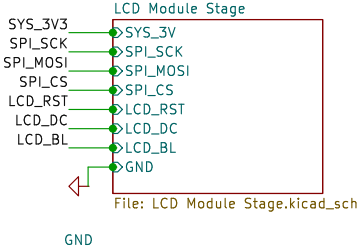

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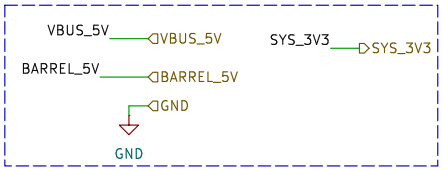
File: Integrate Si5351A Module.kicad_sch

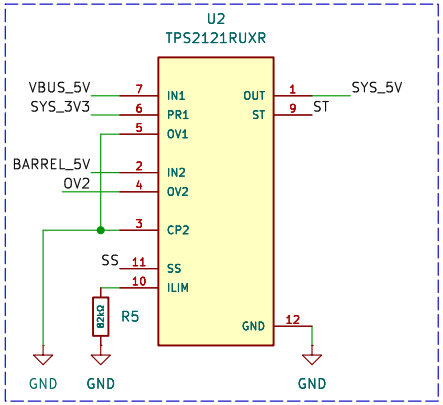
Title: Integrated Si5351A Module

Size: A4	Date: 2026-02-09	**Rev: REV1**
KiCad E.D.A. 9.0.7		Id: 1/6

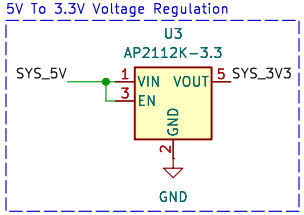
Sheet Hierarchical Pins



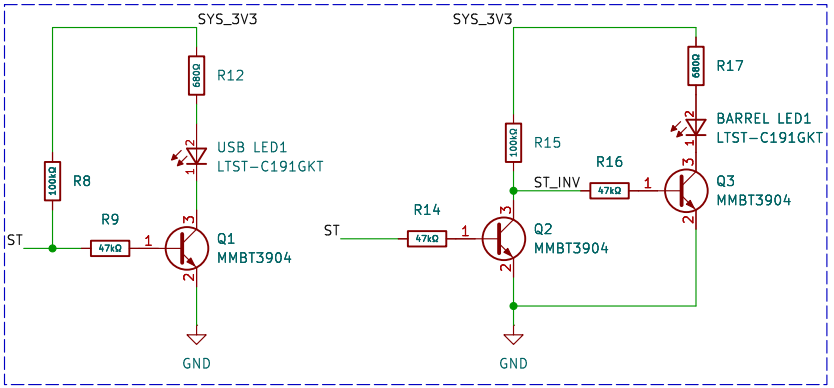
USB/Barrel Jack Power Multiplexing



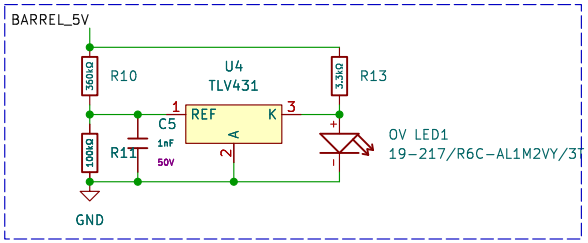
5V To 3.3V Voltage Regulation



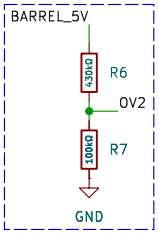
Barrel Jack/USB LED Indicators



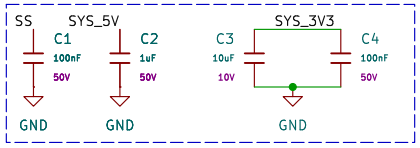
Barrel Jack O.V LED Indicator



Barrel Jack O.V Threshold



Coupling Capacitors



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Title: Integrated Si5351A Module – Power Stage	
Size: A4	Date: 2026-02-09
KiCad E.D.A. 9.0.7	Id: 2/6
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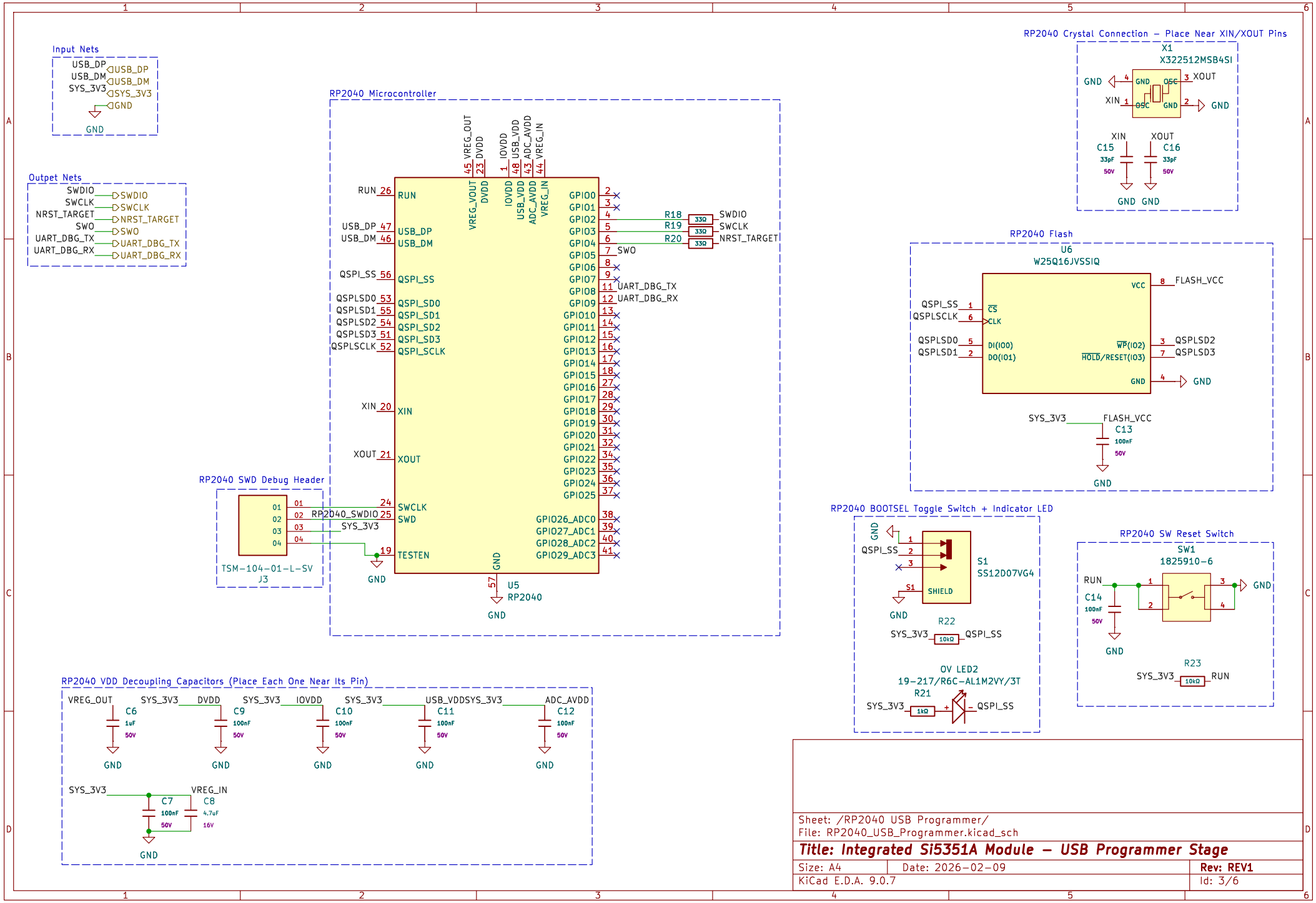
Input Nets
USB_DP
USB_DM
SYS_3V3
GND
Outpet Nets
SWDIO
SWCLK
NRST_TARGET
SWO
UART_DBG_TX
UART_DBG_RX
RP2040 Microcontroller
RUN
USB_DP
USB_DM
QSPI_SS
QSPLSD0
QSPLSD1
QSPLSD2
QSPLSD3
QSPLSCLK
XIN
XOUT
SWCLK
SWD
TESTEN
VREG_OUT
DVDD
IOVDD
USB_VDD
ADC_AVDD
VREG_IN
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO14
GPIO15
GPIO16
GPIO17
GPIO18
GPIO19
GPIO20
GPIO21
GPIO22
GPIO23
GPIO24
GPIO25
GPIO26_ADC0
GPIO27_ADC1
GPIO28_ADC2
GPIO29_ADC3
R18
R19
R20
33Ω
U5
RP2040
RP2040 SWD Debug Header
TSM-104-01-L-SV
J3
RP2040_SWDIO
SYS_3V3
RP2040 Crystal Connection – Place Near XIN/XOUT Pins
X1
X322512MSB4SI
C15
C16
33pF
50V
RP2040 Flash
U6
W25Q16JVSSIQ
FLASH_VCC
C13
100nF
RP2040 BOOTSEL Toggle Switch + Indicator LED
S1
SS12D07VG4
SHIELD
R22
10kΩ
OV LED2
19-217/R6C-AL1M2VY/3T
R21
1kΩ
RP2040 SW Reset Switch
SW1
1825910-6
C14
R23
RP2040 VDD Decoupling Capacitors (Place Each One Near Its Pin)
C6
1uF
C7
C8
4.7uF
16V
C9
C10
C11
C12
GND
Sheet: /RP2040 USB Programmer/
File: RP2040_USB_Programmer.kicad_sch
Title: Integrated Si5351A Module – USB Programmer Stage
Size: A4
Date: 2026-02-09
Rev: REV1
KiCad E.D.A. 9.0.7
Id: 3/6

Stage Input Nets

UART_DBG_RX
UART_DBG_TX
SWO
NRST_TARGET
SWCLK
SWDIO
SYS_3V3
GND

Stage Output Nets

I2C_SCL
I2C_SDA
SPI_CS
SPI_SCK
SPI_MOSI
LCD_DC
LCD_RST
LCD_BL

STM32 MCU

U7
STM32G071RBT6

MCU HSE CRYSTALL

Y1
NX3225SA-16.000M-STD-CRS-2
PF0
PF1
C22
12pF
50V
C23
12pF
50V
GND

I2C Debug Header

SYS_3V3
GND
I2C_SDA
I2C_SCL
J5
TSM-104-01-L-SV

SPI/LCD Debug Header

GND
SYS_3V3
SPI_CS
SPI_SCK
SPI_MOSI
LCD_DC
LCD_RST
LCD_BL
J6
68000-408HLF

MCU General Purpose Debug Header

SYS_3V3
GND
GPIO1
GPIO2
GPIO3
GND
GPIO4
SYS_3V3
J4
68000-408HLF

I2C Pull-Up Resistors

SYS_3V3
SYS_3V3
R24
4.7kΩ
R25
4.7kΩ
I2C_SDA
I2C_SCL

MCU VDD Decoupling Capacitors

SYS_3V3
VDD/VDDA
C17
4.7uF
16V
C19
100nF
50V
VSS/VSSA
GND
SYS_3V3
VBAT
C20
100nF
50V
GND
R27
SYS_3V3
10kΩ
NRST
NRST_TARGET
C18
100nF
50V
GND
SYS_3V3
VREF
C21
100nF
50V
GND

Sheet: /STM32 MCU Stage/	
File: STM32 MCU Stage.kicad_sch	
Title: Integrated Si5351A Module – STM32 MCU	
Size: A4	Date: 2026-02-09
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Stage Input Nets

SYS_3V3 — SYS_3V3
I2C_SCL — I2C_SCL
I2C_SDA — I2C_SCA
GND — GND
GND

RF Module Wiring

IC1
SI5351A-B-GT

RF_VDD 1 — VDD
XA 2 — XA
XB 3 — XB
I2C_SCL 4 — SCL
I2C_SDA 5 — SDA
CLK0 10 — R28 49.9Ω — CLK0
CLK1 9 — R29 49.9Ω — CLK1
GND 8 — GND
VDDO 7 — RF_VDDO
CLK2 6 — R30 49.9Ω — CLK2
GND

RF Module Referance Crystal

Y2
ABM8G-25.000MHZ-B4Y-T3

XA 1 — C24 12pF 50V — GND
GND 2 — GND
XB 3 — C25 12pF 50V — GND

Clock Outputs - SMA

CLK0 1 — SIG — J7 BWSMA-KE-P001
G1 — GND — GND

CLK1 1 — SIG — J8 BWSMA-KE-P001
G1 — GND — GND

CLK2 1 — SIG — J9 BWSMA-KE-P001
G1 — GND — GND

RF Module Decoupling Capacitors

SYS_3V3
RF_VDD — C26 100nF 50V — GND
C27 4.7uF 16V — GND

SYS_3V3
RF_VDDO — C28 100nF 50V — GND

Clock Outputs - Header

CLK0 01 — 01
GND 02 — 02
CLK1 03 — 03
GND 04 — 04
CLK2 05 — 05
GND 06 — 06
J10 TSM-106-01-L-SV

Sheet: /RF Module Stage/		
File: RF Module Stage.kicad_sch		
Title: Integrated Si5351A Module - RF Module Stage		
Size: A4	Date: 2026-02-09	**Rev: REV1**
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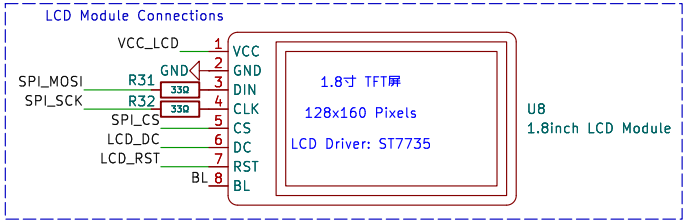
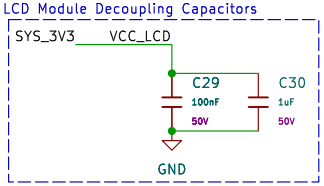
SYS_3V3 — SYS_3V
GND — GND
SPI_CS — SPI_CS
SPI_SCK — SPI_SCK
SPI_MOSI — SPI_MOSI
LCD_DC — LCD_DC
LCD_RST — LCD_RST
LCD_BL — LCD_BL

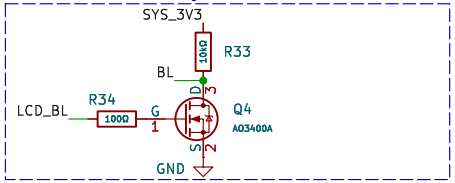
LCD Module Connections



LCD Module Decoupling Capacitors



LCD Module PWM Logic



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Title: Integrated Si5351A Module – LCD Module Stage		
Size: A4	Date: 2026-02-09	**Rev: REV1**
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